

SUPPLEMENT TO

TM 11-289

RECEIVER-TRANSMITTERS RT-66/GRC

RT-67/GRC AND RT-68/GRC

The following information, published on Order No. 32114-Phila-51, supplements TM 11-289, 19 March, 1951. The serial numbers of the equipment covered in this supplement are:

<i>Name</i>	<i>Serial numbers</i>
Receiver-Transmitter RT-68/GRC	20,350 through 30,676 35,678 through 43,300

Personnel using this equipment and having custody of this technical manual will enter suitable notations beside each affected paragraph and figure in the technical manual to indicate the presence of this supplementary information.

Note. The changes in this supplement apply only to the RT-68/GRC models bearing Order No. 32114-Phila-51. Since changes may be made in the equipment after this supplement is printed, always consult the circuit label supplied with the equipment before doing any trouble shooting.

Change "lowest" to read "39" in the following places in the manual:

- Page 117. Par. 71f(5). Line 2.
- Page 117. Par. 71g(6). Line 1.
- Page 118. Par. 71g(16). Line 1.
- Page 118. Par. 71g(18). Line 8.
- Page 119. Par. 72c(5). Line 2.
- Page 122. Par. 74c. Third item in "Position" column.
- Page 123. Par. 77b. Line 1.

Change "highest" to read "53" in the following places in the manual:

- Page 117. Par. 71f(2). Line 2.

- Page 117. Par. 71g(3). Line 1.
- Page 118. Par. 71g(11). Line 1.
- Page 118. Par. 71g(18). Line 10.
- Page 119. Par. 72c(2). Line 5.
- Page 119. Par. 72c(5). Line 7.
- Page 121. Par. 72f(2)(g). Line 1.
- Page 122. Par. 74j. Line 2.

Page 6. Par. 5. In subparagraph c, line 18, add the following after 30 mw:

The value of 30 mw is the value at which the re-transmit (fixed level) audio amplifier is adjusted at the factory. An internal control permits readjustment to this value if necessary.

Page 16. Fig. 9. Make the following changes in figure 9:

Disconnect from the block marked "SQUELCH OSCILLATOR V-103" the lead going to the block marked "RECEIVER R-F AMPLIFIER V-1".

Connect the free end of the lead to the block marked "1st FIXED IF, 1st & 2D LIMITERS V-110, V-111, V-112".

Connect a second feed line from the block marked "1st FIXED IF, 1st & 2D LIMITERS V-110, V-111, V-112" to the input side of the block marked "SQUELCH OSCILLATOR V-103".

Page 23. Par. 16. Make the following changes in paragraph 16:

In subparagraph *a*, delete the last sentence and substitute the following:

The gain of the r-f amplifier stage, V-1, is controlled, particularly at high signal input levels, by a voltage fed back to it from the grid of the receiver first limiter stage, V-111.

In subparagraph *f*, delete the last sentence and substitute the following:

A portion of the d-c grid voltage developed in the grid circuit of the first limiter is combined with a portion of the d-c grid voltage developed in the grid circuit of the second limiter to provide a bias voltage. This bias is fed to the squelch circuit to provide silencing action as described in subparagraph *i* below and in paragraph 40. A portion of the d-c grid voltage developed in the grid circuit of the first limiter also is fed back as agc (automatic gain control) to the grid circuit of the r-f amplifier stage, V-1, to cause the receiver gain characteristic to be more similar from set to set.

Page 25. Par. 18. Add the following to the end of the paragraph:

Because of the changes made in the equipment, as covered in this supplement, differences exist in the transmitter power amplifiers, receiver r-f amplifiers, and squelch and ringer circuits of the three receiver-transmitters.

Page 26. Par. 21. Make the following change in paragraph 21:

In subparagraph *d*, first sentence, change:

"through the high a-f pre-emphasis network, C-145, C-142, C-137 and C-138 to the second grid" to read: through coupling capacitors C-145 and C-142 to the second grids.

Page 27. Fig. 13. Change the value of AFC resistors R-116 and R-118 from 120K to 180K each. Delete capacitors C-137 and C-138.

Page 29. Fig. 15. Change the value of R-13 from 47K to 82K.

Page 30. Par. 23. Make the following changes in paragraph 23:

In the paragraph heading change "(fig. 16)" to read: (figs. 16 and 16.1).

In subparagraph *b*, delete the fourth sentence.

Page 31. Fig. 16. Insert figure 16.1 after figure 16.

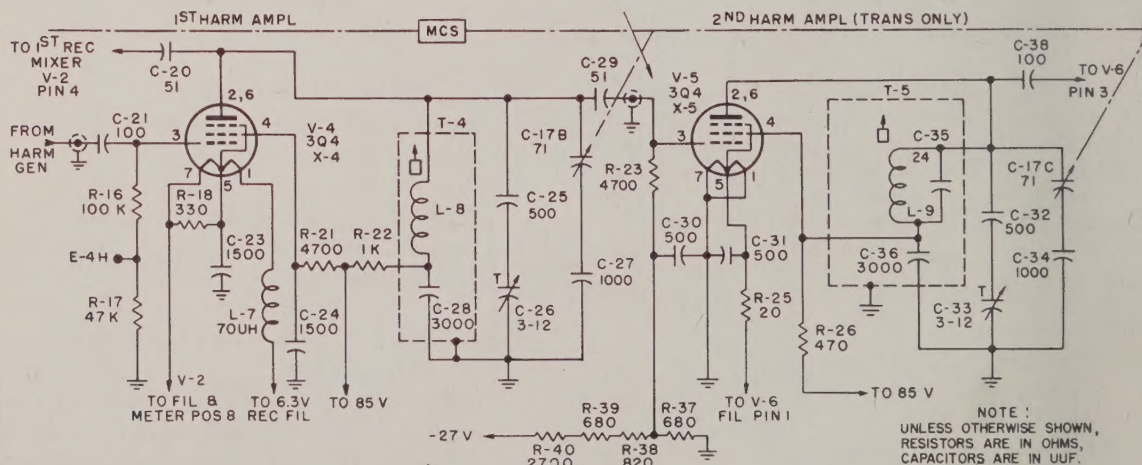


Figure 16.1. Harmonic amplifier, functional diagram (Order No. 32114-Phila-51).

Page 31. Par. 24. Make the following changes in paragraph 24:

In the paragraph heading, change "(fig. 17)" to read: (figs. 17 and 17.1).

In subparagraph *a*, delete the fifth sentence and substitute the following:

The grid is returned to ground through grid leak resistor R-27.

In the ninth sentence of subparagraph *a*, add the following after "RT-66/GRC"; and RT-68/GRC.

In subparagraph *b*, delete the fourth sentence and substitute the following:

Signal bias is developed across grid leak resistor R-27, which is returned to ground.

Page 32. Fig. 17. Insert figure 17.1 after figure 17.

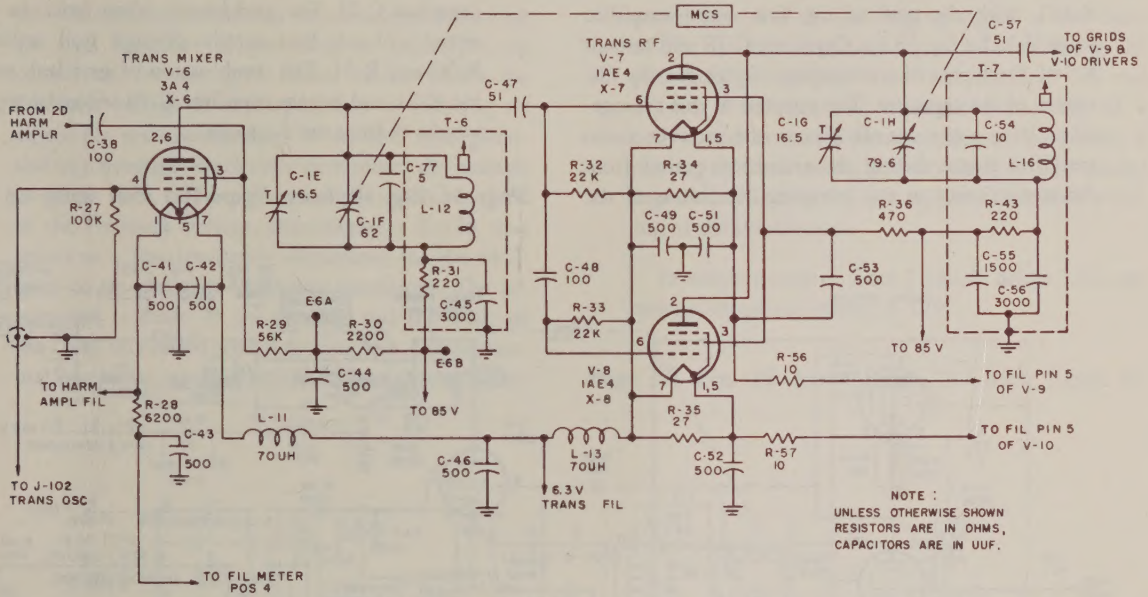


Figure 17.1. Transmitter mixer V-6 and r-f amplifiers V-7 and V-8, functional diagram (Order No. 32114-Phila-51).

Page 32. Par. 25. Make the following changes in paragraph 25:

In the paragraph heading, change "(fig. 17)" to read: (figs. 17 and 17.1).

In subparagraph *b*, seventh sentence, delete "and C-50".

In subparagraph *b*, eighth sentence, change "bypass capacitors C-49 and C-50" to read: bypass capacitor C-49.

Page 33. Par. 26. Make the following changes in paragraph 26:

In the heading, change "(fig. 18)" to read: (figs. 18 and 18.1).

In subparagraph *a*, eighth sentence, add the following after "C-1,": fixed padder C-81.

In subparagraph *a*, insert the following after the eighth sentence:

Fixed padder capacitor C-81 (5 uuf) serves to facilitate tracking.

Page 33. Par. 27. Make the following changes in paragraph 27:

In the paragraph heading, change "(fig. 18)" to read: (figs. 18 and 18.1).

In subparagraph *a*, delete the first six sentences and substitute the following:

The output stage or power amplifier of the transmitter uses a type 2E24 pentode tube V-11, operating Class C (fig. 18.1). Grid drive, obtained from the output of the driver stage through coupling capacitor C-67, is developed across grid leak resistor R-51. The grid is returned to ground for rf through R-51 and through r-f bypass capacitor C-70. The d-c ground return for the grid is provided through fixed bias supply resistors R-50 and R-37 through R-40. Fixed bias of -27 volts is applied to the grid directly from the -27-volt supply. The plate circuit of V-11 is tuned to parallel resonance by coil L-22, section L of r-f tuning capacitor C-1, and trimmer capacitor C-1M. A series padder capacitor C-80 (470 uuf) serves to facilitate tracking.

serves to stabilize the oscillator against changes in power supply potentials and variations in tube characteristics. The amount of degenerative feedback voltage actually applied to the grid, as well as the phase angle of the voltage thus fed back, is determined by the setting of potentiometer R-128. In this connection, R-128 may be considered as having the dual functions of providing an adjustable tap connection for the grid circuit across which the feedback voltage is developed, and of forming an adjustable resistive element of an R-C type phase-shifting network which thus determines the amount of phase shift, or frequency compensation provided in the feedback voltage. Potentiometer R-128 thus serves as a fine-frequency adjustment for the oscillator under particular operating conditions. The adjustment is made in the factory, and the shaft of the control is sealed with a locking nut. During normal operation, no further adjustment of the poten-

tiometer is necessary. The oscillator output is developed across winding 5-6 of T-105, and is applied over terminals 8 of connectors J-108 and P-308, contacts 1E (section 1, front) of switch S-302, and terminals 7 of P-308 and J-108, to input winding 4-5 of modulator input transformer T-106. From this point, the path of the ringing signal is the same as that of any microphone signal, as described in the preceding paragraphs. Note that windings 5-6 and 1-2 of T-105 are one continuous winding of a coil wound as an autotransformer, with terminal 5 as a tap on the winding and terminals 6 and 1 joined together. Winding 3-4 is a separate secondary winding of the transformer.

In subparagraph c, lines 7 and 8, delete "through voltage dropping resistor R-129".

Page 36. Fig. 19. Insert figure 19.1 after figure 19.

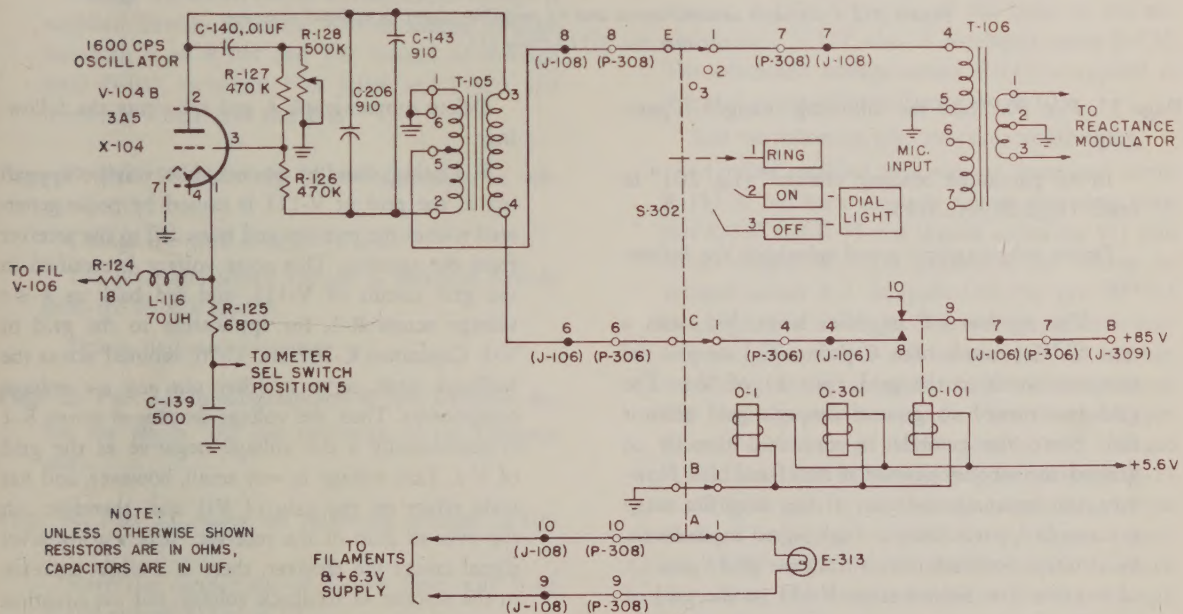


Figure 19.1. Ringer circuit functional diagram (Order No. 32114-Phila-51).

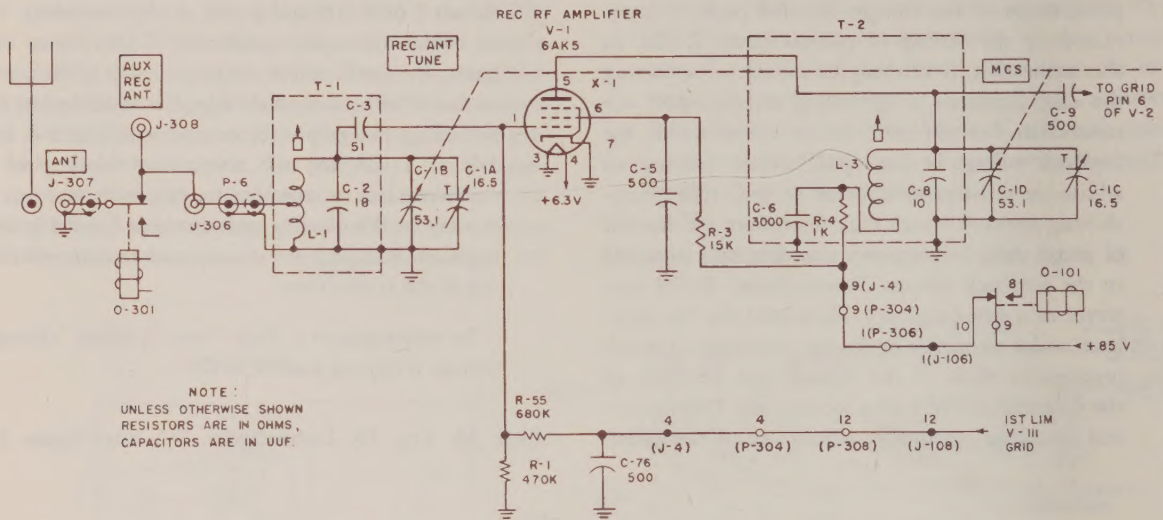


Figure 20.1. Receiver antenna circuit and r-f amplifier stages, functional diagram (Order No. 32114-Phila-51).

Page 37. Par. 30. Make the following changes in paragraph 30:

In the paragraph heading, change "(fig. 20)" to read: (figs. 20 and 20.1).

Delete subparagraph *a* and substitute the following:

a. The receiver r-f amplifier stage, V-1, uses a type 6AK5 pentode tube. Capacitor C-3 couples the antenna circuit to the grid (pin 1) of V-1. The grid is returned to ground through grid resistor R-1. Since the cathode is connected directly to ground, the tube is operated at zero fixed bias. However, the instantaneous gain of the amplifier stage is controlled, particularly at high signal input levels, by a voltage feedback circuit from the grid (pins 6) of receiver first limiter stage V-111 to the grid of V-1. The feedback circuit is established through voltage-dropping resistor R-180, pins 12 of J-108 and P-308, pins 4 of connectors P-304 and J-4, and through voltage-dropping resistor R-55. In this connection, grid resistor R-1 serves as part of a voltage divider for the feedback voltage. Thus, a portion of the voltages developed in the grid circuits of V-111 and V-112 is fed back across R-1 as an automatic gain control voltage for the grid of V-1.

Delete subparagraph *b* and substitute the following:

b. During stand-by periods, the voltage appearing at the grid of V-111 is caused by noise generated within the receiver and noise fed to the receiver from the antenna. This noise voltage is rectified in the grid circuit of V-111, and fed back as a d-c voltage across R-1, for application to the grid of V-1. Capacitors C-207 and C-76, shunted across the feedback path, serve to filter out any a-c voltage components. Thus, the voltage developed across R-1 is substantially a d-c voltage negative at the grid of V-1. This voltage is very small, however, and has little effect on the gain of V-1 and, therefore, on the over-all gain of the receiver. When a low-level signal enters the receiver, there is a slight increase in the amount of feedback voltage, but the situation remains substantially as described above for the no-signal condition. When a sufficiently strong signal enters the receiver to cause the limiter grid to draw saturation current, a relatively large negative feedback voltage is applied to the grid of V-1. The gain of this stage and the over-all gain of the receiver thus are reduced proportionately. For further increases in signal input level, the gains of the receiver and of V-1 remain substantially constant, since, with the

limiter stages already drawing saturation grid current, no further increase in feedback voltage is possible.

In subparagraph *d*, delete the first sentence and substitute the following:

Voltage for the plate (pin 5) is series-fed through voltage-dropping resistor R-4, which is bypassed for rf by capacitor C-6 and through coil L-3 of the tuned circuit.

In subparagraph *d*, delete the third sentence.

In subparagraph *e*, change the second sentence to read:

The plate circuit components, L-3, C-6, C-8, and R-4, are assembled in a can identified as T-2.

Page 38. Fig. 21. Make the following changes in figure 21: Change the value of C-20 from 15 to 51.

Change the value of C-10 from 3000 to 1500.

Change the value of R-5 from 270K to 100K.

Change the value of R-6 from 120K to 33K.

Change the screen circuit so that screen voltage is supplied directly from the 85-volt supply through terminals 6 of P-304 and J-4, instead of through relay O-101, terminals 1 of J-106 and P-306, and terminals 9 of P-304 and J-4.

Page 39. Par. 31. Make the following changes in subparagraph *e*:

Change the third sentence to read:

The plate and screen voltage is obtained directly from the 85-volt supply.

Delete the fourth sentence.

Page 39. Par. 32. In subparagraph *b*, first sentence, delete the words "the low resistance of the filament and".

Page 40. Fig. 22. Make the following changes in figure 22:

Shift the connection of C-149 from pin 7 of V-107 to pins 1, 5 of V-107.

Delete the lead from pin 7 of V-107 and the reference "TO RETRANS AUDIO FIL (PIN 1) V-102".

Connect pin 7 of V-107 to ground.

Page 42. Par. 35. Make the following changes in paragraph 35:

In the paragraph heading, change "(fig. 24. See

insert in back of manual)" to read: (figs. 24 and 24.1. See *inserts in back of manual*).

In subparagraph *a*, seventh line, change "1U4" to read: 1L4.

In subparagraph *b*, first sentence, delete the word "also".

In subparagraph *b*, add the following at the end of the fourth sentence:

In addition, the rectified grid current of this stage provides an agc feedback voltage for the grid of the r-f amplifier, V-1, to stabilize the gain of that stage and of the over-all receiver. The combined rectified grid currents of V-111 and V-112 also provide a bias voltage for the squelch oscillator, V-103, to control the action of the squelch circuit under no-signal and signal conditions, as described in paragraph 40.

In subparagraph *b*(3), delete the fourth sentence, and substitute the following:

A portion of the input to the first limiter also is coupled through R-111 to a common squelch bias resistor, R-113. A portion of the input to the second limiter, V-112, also is developed across R-113. The combined voltage across R-113 is applied to the grid of squelch oscillator tube V-103.

Add the following after subparagraph *b*(3):

(4) The rectified grid voltage developed across R-153 is fed back through voltage-dropping resistors R-180 and R-55 and applied across the V-1 grid return resistor, R-1. The portion of the voltage developed across R-1 is applied to the grid of V-1 as a negative d-c voltage. This voltage serves to control the gain of V-1 and of the over-all receiver, depending on the strength of the incoming signal. The feedback path is established from the grid (pin 6) of V-111 through R-180, pins 12 of J-108 and P-308, pins 4 of P-304 and J-4, and through R-55 to the grid (pin 1) of V-1. A-c components of the feedback voltage are filtered out by bypass capacitors C-207 and C-76, shunted across the feedback path. Since the rectified current flowing through R-153 depends on the signal level appearing at the receiver input, as well as on the gain of the particular receiver up to this point, the negative feedback voltage tends to stabilize the over-all gain of the receiver, particularly for high signal input levels and for signals bordering on the receiver noise level. The net effect on the receiver is that better squelch control over a greater range of signal input levels is obtained.

Add the following after subparagraph *c*(4):

(5) A portion of the d-c grid voltage developed by grid current rectification in the grid circuit of the second limiter stage, V-112, is routed through R-184 and is developed across R-113, which is common to the grid circuits of V-111 and V-112. The combined voltage dropped across R-113 is applied as grid bias to the squelch oscillator tube, V-103. This bias serves to control the squelch oscillator on or off condition, depending upon the absence or presence of a received signal.

In subparagraph *d*(7), delete the last sentence and substitute the following:

The combined limiting and gain characteristics of the first and second limiters for the various noise and signal conditions, as described above, are utilized to perform uniform squelch control action (par. 40).

Page 46. Fig. 25. Make the following changes in figure 25:

Change the values of AFC resistors R-116 and R-118 from 120K to 180K each.

Change the value of R-106, in the lead to retransmit audio-amplifier V-102, from 3.9 meg to 680K.

Change the value of R-175 from 270K to 150K.

Change the value of C-199 from 240 to 750.

Page 48. Par. 37. Make the following changes in paragraph 37.

In the paragraph heading, change "(fig. 27)" to read: (figs. 27 and 27.1).

In subparagraph *a*, second sentence, change "de-emphasis network, C-198 and C-197" to read: de-emphasis capacitor C-198.

In subparagraph *a*, fourth sentence, change "De-emphasis network C-198 and C-197" to read: De-emphasis capacitor C-198.

Add the following at the end of subparagraph *c*:

Another circuit, associated with the grid (pin 3) of V-115, serves to cut off the audio amplifier stages during transition periods from the transmitting to the receiving conditions of the receiver-transmitter. The circuit extends through R-181, a pair of normally open contacts (2-3) of relay O-1 to ground, and from the moving contact (terminal 3) of O-1 through a capacitor, C-78, to another pair of normally open contacts (5-4) of relay O-1. These latter contacts are in the voltage supply circuit for the

screen grid of transmitting power-amplifier V-11. Capacitor C-78 and resistors R-173, R-174, R-109, R-110, and R-181 constitute a charging and discharging path. During transmit intervals, when relay O-1 is energized, contacts 5-4 connect +250 volts to the screen of V-11 and to one side of C-78. Contacts 2-3 connect ground to the other side of C-78. During the transmit period, C-78 charges to +250 volts. When, at the end of the transmit period, contacts 4-5 and 2-3 of relay O-1 open, the charging potential is disconnected from C-78; that capacitor discharges through resistors R-181, R-173, R-174, R-109, and R-110; and a negative voltage is developed at the grid of V-115. This voltage is large enough to cut off V-115, and is applied to V-115 long enough to permit the squelch oscillator to become fully operative and, in turn, apply normal squelch bias to cut off the audio circuits. This is necessary to prevent the audio tubes from being operative after transmission has ceased and the squelch oscillator has not as yet built up a high enough output voltage to provide cut-off bias to them.

Page 49. Fig. 27. Insert figure 27.1 after figure 27.

Page 50. Fig. 28. Insert figure 28.1 after figure 28.

Page 50. Par. 38. In the paragraph heading, change "(fig. 27)" to read: (figs. 27 and 27.1).

Page 50. Par. 39. Make the following changes in paragraph 39:

Change the paragraph heading to read: Retransmit Audio Amplifier (Fixed Level Audio) V-102 (figs. 28 and 28.1).

In subparagraph *a*, fourth sentence, delete "R-104".

Add the following at the end of subparagraph *a*:

The time-delay circuit associated with C-78 and the grid of V-115 (par. 37*c*) also serves to cut off V-102 during the transition period from the transmit to the receive conditions of the receiver-transmitter; it therefore supplements the action of the squelch circuit during this interval of time.

Page 51. Par. 40. Make the following changes in paragraph 40:

In the paragraph heading, change "(fig. 29)" to read: (figs. 29 and 29.1).

Delete subparagraph *b* and substitute the following:

interelectrode capacitance of the tube and the stray capacity in the wiring. The oscillator generates a frequency of approximately 30 kc. Regenerative feedback, necessary to sustain oscillations, is established partially through leakage across the shield between the plate and grid windings of L-108, partially through the electron coupling within the tube, and in large part through coupling capacitor C-204 (5 uuf), which is connected between the plate (pin 5) and the grid (pin 6) of V-103. The plate circuit is returned to ground for rf through capacitor C-205 (.01 uf), connected from the junction of L-108 and resistor R-172 to ground. The grid circuit of the oscillator is returned to ground through grid resistor R-113 (82K). It also is connected through R-111 (2.2 meg), bypassed by capacitor C-118, to the grid (pin 6) of the first limiter tube, V-111, and through R-184 (680K) to the grid (pin 6) of the second limiter tube, V-112. Resistors R-111 and R-113 act as a voltage divider for the voltage developed in the grid circuit of V-111. Resistors R-184 and R-113 act as a voltage divider for the voltage developed in the grid circuit of V-112. Since R-113 is common to the grid circuits of V-111 and V-112, the voltage drops across R-113 are combined into a single voltage. This voltage is applied as negative bias to the grid of V-103.

(1) The action of the squelch biasing circuit depends on the relative grid current flow characteristics of the first and second limiter stages for various noise and signal input levels to the receivers. In effect, the grid voltages contributed by the two stages to the combined squelch biasing voltage complement each other. At no-signal and low-level signal voltages, the current flow in the grid circuit of V-111 is very low. Grid current flow increases gradually as the incoming signal strength is increased. It does not reach saturation until fairly strong signals are received. Under no-signal and low-level signal conditions, the rectified grid current flow of V-112 is larger than that of V-111. The V-112 grid current flow increases as the signal strength increases and reaches saturation for relatively low-level signals.

(2) When no signal is present in the receiver, the noise voltages appearing at the input to V-111 cause grid current (dc) to flow and cause a voltage drop across R-113. Similarly, the noise voltages appearing at the input to V-112 cause grid current to flow there and cause a corresponding voltage drop across R-113. The combined voltage developed across R-113 and applied to the grid of V-103 as a

negative bias is low enough to permit V-103 to continue oscillations. A-c components of this bias voltage are filtered out.

(3) When a signal enters the receiver, the grid current flow in V-111 increases gradually. The current flow through the grid circuit of V-112 increases rapidly. The resultant negative bias voltage developed across R-113 and applied to the grid of V-103 is now large enough to bias the oscillator to cut off, and oscillations cease.

In subparagraph *c*, change the last sentence to read:

The return circuit for these voltages is established through ground, the filament of V-107, and pin 1 of V-103.

Delete subparagraph *d* and substitute the following:

d. The voltage developed across R-110 is applied over two paths: to the retransmit audio amplifier stage, V-102, and to the first audio amplifier stage, V-115. Diode load resistor R-110 is common to the grid circuits of V-102 and V-115. The grid circuit of V-102 extends through potentiometer R-103, resistor R-109, and through squelch diode load resistor R-110. The grid circuit of V-115 extends through resistors R-173, R-174, and R-109 to diode load resistor R-110. The rectified squelch oscillator voltage developed across R-110 is, therefore, effectively applied to both audio tubes, V-102 and V-115, and serves to bias these tubes to cut off. This condition prevails as long as no signal enters the receiver and as long as the squelch oscillator is operative. An on-frequency signal entering the receiver increases the bias provided by grid current rectification of V-111 and V-112, and biases the squelch oscillator V-103 to cut off. The rectified squelch oscillator output voltage then disappears from across R-110, and the cut-off bias is removed from V-102 and V-115. These tubes thus are returned to full operation. During transmission, the sidetone signals entering the receiver from the transmitter act as if a signal had been received from the antenna. The sidetone signals thus cut off the squelch oscillator and return the audio tubes to full operation as Class A amplifiers. At the end of transmission, when the sidetone signals cease, the levels of voltages in the grid circuits of V-111 and V-112 drop to the noise-voltage levels, and the squelch oscillator is returned to normal operation. Its output voltage is rectified as described above, and the resultant bias voltage cuts off the audio amplifier stages. A circuit connecting

the grid of first audio amplifier stage V-115, through capacitor C-78, to the screen supply circuit of the transmitter power amplifier V-11 functions to silence the receiver during transition periods from the transmit to the receive conditions of the receiver-transmitter. Capacitor C-78 and resistors R-181, R-173, R-174, R-109, and R-110 (fig. 55.1) constitute a time-delay circuit, which charges during transmit periods and starts discharging immediately after the opening of contacts 2-3 and 4-5 of relay O-1 disconnects the screen supply voltage from across C-78. The discharge of C-78 places a negative voltage on the grids of V-115 and V-102 which drives these tubes to cut off as described in subparagraph *e* below.

Delete subparagraph *e* and substitute the following:

e. The grid of V-115 is connected through R-181, terminals 11 of J-108 and P-308, terminals 5 of P-305 and J-5, and the normally open contacts 2-3 of relay O-1 to ground. The armature (contact 3) of the relay is connected through capacitor C-78 to the screen circuit of V-11. Normally open contacts 4-5 of relay O-1 connect, when closed, screen supply voltage to this circuit. During receiving and stand-by conditions of the set, when relay O-1 is de-energized, the contacts of the relay are open, and the circuit associating the screen of V-11 with the grid of V-115 (C-78 and R-181) has no function. When the relays become energized for transmission purposes, these contacts close. Contacts 4-5 connect the screen supply voltage (+250 volts) to the screen of V-11 and to one side of capacitor C-78. Contacts 2-3 connect the other side of this voltage to C-78 (through ground); the capacitor, therefore, charges up to the full value of the supply voltage. Under this condition, the sidetone signals, as described in subparagraph *d* above, cut off the squelch oscillator, and the audio-amplifier tubes are made fully operative. Immediately after transmission has ceased, and relay O-1 has become de-energized, the squelch oscillator is still disabled. Since it takes some time to build up enough output power to cut off the audio tubes, the squelch oscillator cannot perform its function of squelching the receiver during this transition period. The time-delay circuit described above performs this function during this transition period. At the end of transmission, when contacts 4-5 and 2-3 of relay O-1 open, capacitor C-78 is disconnected from across the screen supply for V-11. The grids of the audio tubes now are returned to ground through resistors

R-109 and R-110. Until the squelch oscillator becomes fully operative, no squelch bias voltage is developed across R-110, the audio tubes are operative, and receiver noises appear at the audio output circuits. However, capacitor C-78 prevents this from occurring. The charge accumulated across C-78 during the transmit period now discharges slowly through resistors R-181, R-173, R-174, R-109, and R-110, as well as through the interelectrode capacitance of V-11. For the duration of this discharge, a voltage thus is developed at the grids of V-102 and V-115. The polarity of this voltage is negative with respect to ground, and the magnitude of this voltage is such as to cut off these tubes. Before C-78 discharges completely, the squelch oscillator output reaches a high enough output level to raise the squelch diode output voltage to a value sufficient to maintain the audio in the cut-off condition.

In subparagraph *f*, change the first two sentences to read:

Plate voltage for the oscillator portion of V-103 is applied through resistor R-172, which is bypassed by ripple filter capacitor C-144B and r-f bypass capacitor C-205, and through the secondary winding of coil L-108(B). Screen voltage is obtained from the 85-volt source through potentiometer R-302 and switch S-303. SQUELCH control potentiometer R-302, in series with voltage-dropping resistor R-309, is shunted across the 85-volt supply, and serves as a voltage divider for the screen supply for V-103. Resistor R-310, shunted between the B+ side and the arm of the potentiometer, serves to provide for more uniform changes in applied screen voltage with changes in the setting of the potentiometer.

In subparagraph *f*, delete the sixth sentence.

In subparagraph *f*, change the last two sentences to read:

The voltage drops across R-113, in the grid circuit of V-103, provided from the grid circuit of V-111 through R-111 and from V-112 through R-184, set the bias voltage applied to the grid of V-103 to the required value. Filament voltage is applied through isolating coil L-107, connected to pin 1 of V-103. L-107 is bypassed by capacitor C-116. The other side of the filament (pin 7) of V-103 is connected to the filament (pin 1) of V-102.

Page 52. Fig. 29. Insert figure 29.1 after figure 29.

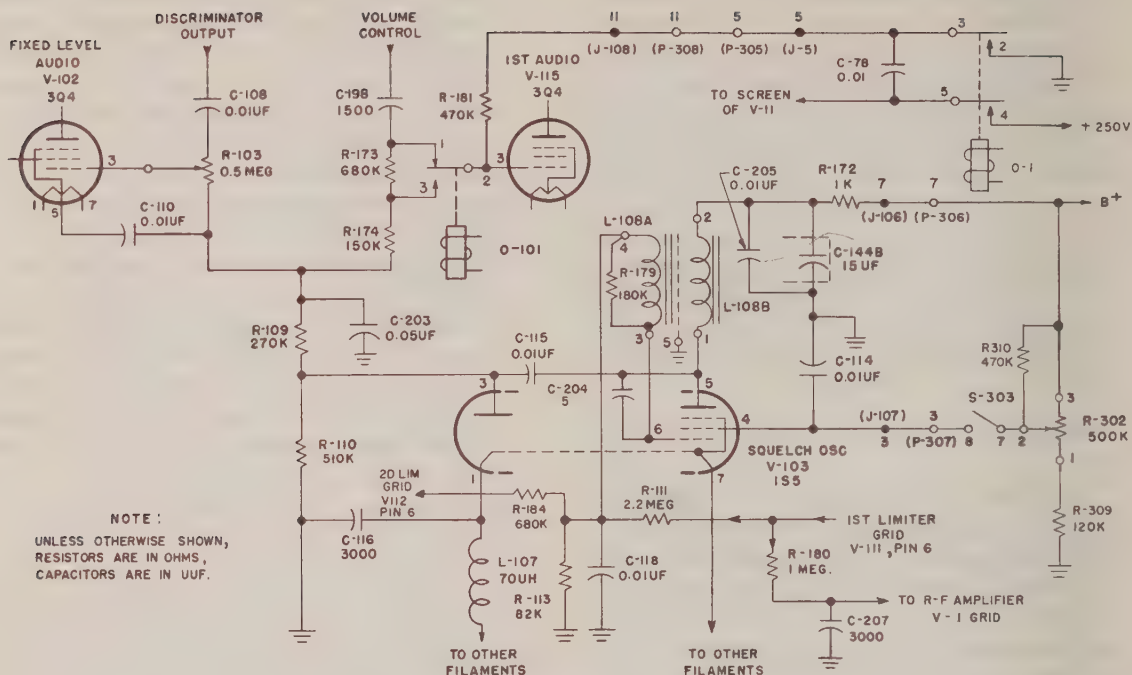


Figure 29.1. Squelch circuits, functional diagram (Order No. 32114-Phila-51).

Page 53. Par. 41. Make the following changes in paragraph 41:

Add the following at the end of subparagraph b(1):

Capacitor C-78, connected between contacts 5 and 3 of relay O-1, provides an audio amplifier cut-off circuit during the transition period from the transmitting to the receiving or stand-by conditions of the receiver-transmitter. The cut-off circuit consists of a time-delay network, associating the grid of V-115 with the screen supply voltage for V-11.

In subparagraph b(3), change the last sentence before the "Note" to read:

Contacts 2-3 of relay O-1 provide a ground-return connection for C-78 across the screen supply for V-11 to permit charging this capacitor during transmit periods. Removal of this ground connection at the end of the transmit period permits the capacitor to discharge and places cut-off bias on the grid of V-115 and V-102.

In subparagraph c(1), second sentence, change "R-3" to read: R-173.

In subparagraph c(4), first sentence, delete "and from the screen of V-2".

Page 54. Fig. 30. Make the following changes in figure 30:

Add capacitor C-78 (10,000 uuf) between contacts 3 and 5 of relay O-1.

Delete the reference associated with contact 3 of relay O-1.

Extend the lead from contact 3 of O-1 through pins 5 of J-5 and P-305, pins 11 of P-308 and J-108, pin 20 of BD-A, R-181 (470K), and pin 19 of BD-A, to an arrow; reference this arrow: TO GRID, PIN 3, of V-115.

Page 55. Par. 42. In the paragraph heading, change "(fig. 31)" to read: (figs. 31 and 31.1).

Page 56. Fig. 31. Insert figure 31.1 after figure 31.

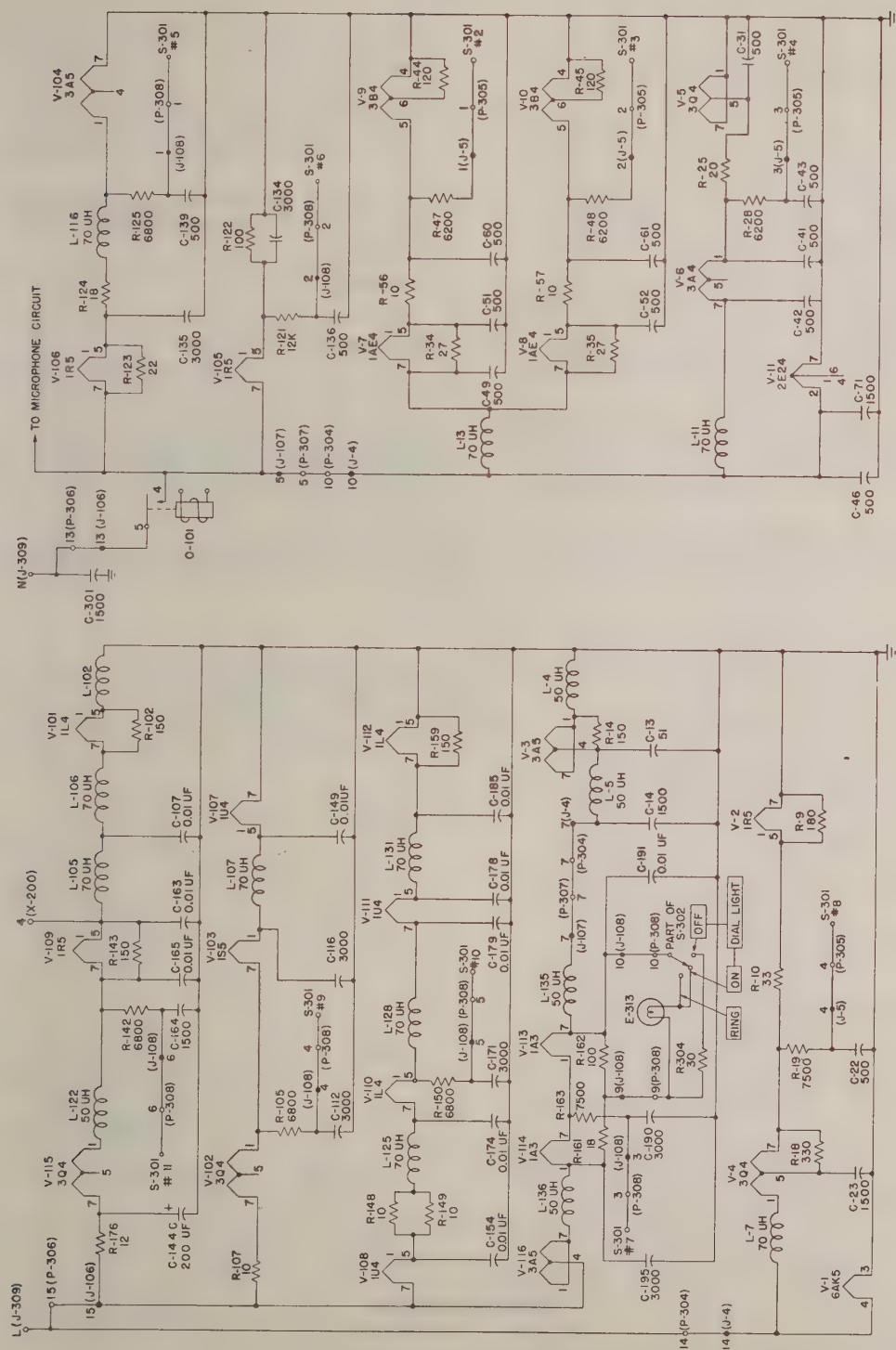


Figure 31.1. Filament circuits, functional circuits (Order No. 32114-Pbila-51).

Page 57. Par. 43. In the paragraph heading, change "(fig. 32. See insert in back of manual)" to read:
(figs. 32 and 32.1. See inserts in back of manual.).

Page 57. Par. 43. Make the following changes in subparagraph a:
Add the following at the end of subparagraph (1):

Resistor R-309, which is in series with R-302, and resistor R-310, which is across the effective portion of R-302, serve to provide for more uniform control of the applied screen voltage.

In subparagraph (3), first sentence, delete "and screen voltage of V-2".

In subparagraph (3), change the second sentence to read:

When this relay is unenergized, the contacts are closed and V-1 is energized.

Add the following at the end of subparagraph (3):

Screen voltage for V-2 is routed from the 85-volt supply terminal B of J-309, over terminals 6 of

J-4 and P-304, and through R-11.

Page 58. Par. 43. Add the following at the end of subparagraph b(3): Capacitor C-78, connected between contacts 5 and 3 of relay O-1, associates the screen supply for V-11, through a time-delay circuit, with the grid of the audio tubes for providing cut-off bias during transition periods from the transmit to receive conditions of the receiver-transmitter.

Page 58. Par. 44. Make the following changes in paragraph 44: in the paragraph heading, change "(fig. 33)" to read:
(figs. 33 and 33.1).

In subparagraph d, delete the sixth sentence and substitute the following:

Series resistor R-308 serves to isolate the rectifier circuit from the meter to insure uniform meter readings for variations in the back resistance of rectifier elements. This resistor serves also as a voltage-dropping resistor. Capacitor C-304 is an r-f filter capacitor.

Page 58. Fig. 33. Insert figure 33.1 after figure 33.

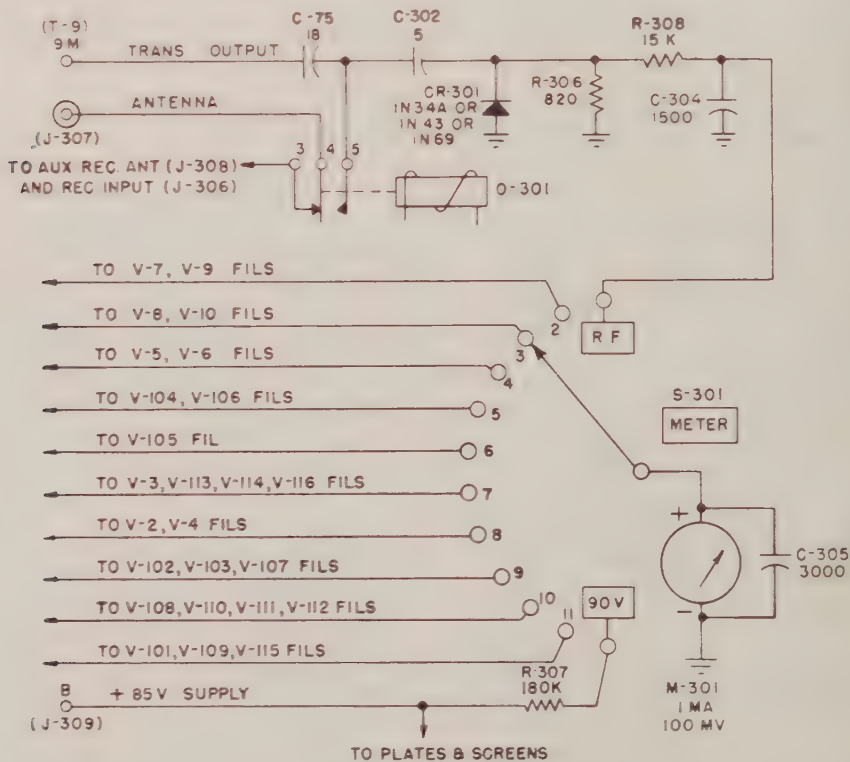


Figure 33.1. Measuring circuit, functional diagram (Order No. 32114-Phila-51).

Page 60. Fig. 35. Delete capacitor C-303, its callout, and arrow.

Page 62. Fig. 37. Make the following changes in figure 37:

Delete resistor R-2, capacitors C-4 and C-39, and coils L-19 and L-20; delete call-outs and arrows associated with these components.

Change call-out "L-15" to read: R-57.

Page 63. Fig. 38. Make the following changes in figure 38:

Delete capacitors C-40 and C-69 and their associated call-outs and arrows.

Change call-out "L-14" to read: R-56.

Delete the capacitor shown just under and slightly to the left of the point of cable entry into the chassis.

Delete the two coils, L-19 and L-20, mounted horizontally on the back of the tube V-11 mounting plate.

Page 67. Par. 46. In subparagraph *g*, add the following to the end of the second sentence:

and RT-68/GRC but with different values.

Page 85. Par. 54. Make the following changes in the "Normal reading" column:

In item 2(*a*), change "0.4 volt minimum" to read -0.7 minimum.

In item 2(*b*), change "Same as above" to read: -1.9.

Page 90. Par. 55. In subparagraph *c*, fourth column, change the meter readings as follows:

Change "0.4 volt" to read: -1.9 volts at 39 mc or -0.7 volt at 53 mc.

Change "1.0 volt" to read: -1.1 volts.

Change "3.5 volts, (2.5 volts in RT-66/GRC)" to read: -1.4 volts (450-v supply off) or -0.8 (450-v supply on).

Change "4.0 volts, (1 volt in RT-66/GRC)" to read: 1 volt.

Page 91. Par. 56. Make the following changes in the second column of the chart:

In the first reading, delete "C-50" and "C-64"; change "L-14" to read: R-56.

In the second reading, delete "C-63"; change "L-15" to read: R-57.

Page 91. Par. 56. Make the following changes in the notes:

In "Note 1," last sentence, change "V-121" to read: V-11 (this change applies to all receiver-transmitter models).

In "Note 3", first sentence, change "V-121" to read: V-11 (this change applies to all receiver-transmitter models).

Fig. 47. (See insert in back of manual.) Make the following changes in the voltage and resistance readings:

At terminal 2 of tube V-1, change the voltage reading from 1.2 (0) V to 0V; change the resistance reading from 220 ohms to 0 ohm.

At terminal 7 of tube V-1, change the voltage reading from 1.2 (0) V to 0V; change the resistance reading from 220 ohms to 0 ohm.

At terminal 1 of tube V-1, change the resistance reading from 220K to 423K.

At terminal 5 of tube V-11, change the voltage reading from 0 (-57) V to 0 (-30) V; change the resistance reading from 10K to 9620 ohms.

At terminal 3 of tube V-3, change the resistance reading from 47K to 82K.

At terminal 3 of tube V-5, change the resistance reading from 1 meg to 5380 ohms.

At terminal 6 of tube V-7, change the resistance reading from 20K to 22K.

At terminal 6 of tube V-8, change the resistance reading from 20K to 22K.

Page 94. Par. 58. In the paragraph heading, change "(figs. 47 and 48. For fig. 47 see insert in back of manual.)" to read:

(figs. 47, 48, and 48.1. For fig. 47 see insert in back of manual.)

Page 94. Fig. 48. Insert figure 48.1 after figure 48.

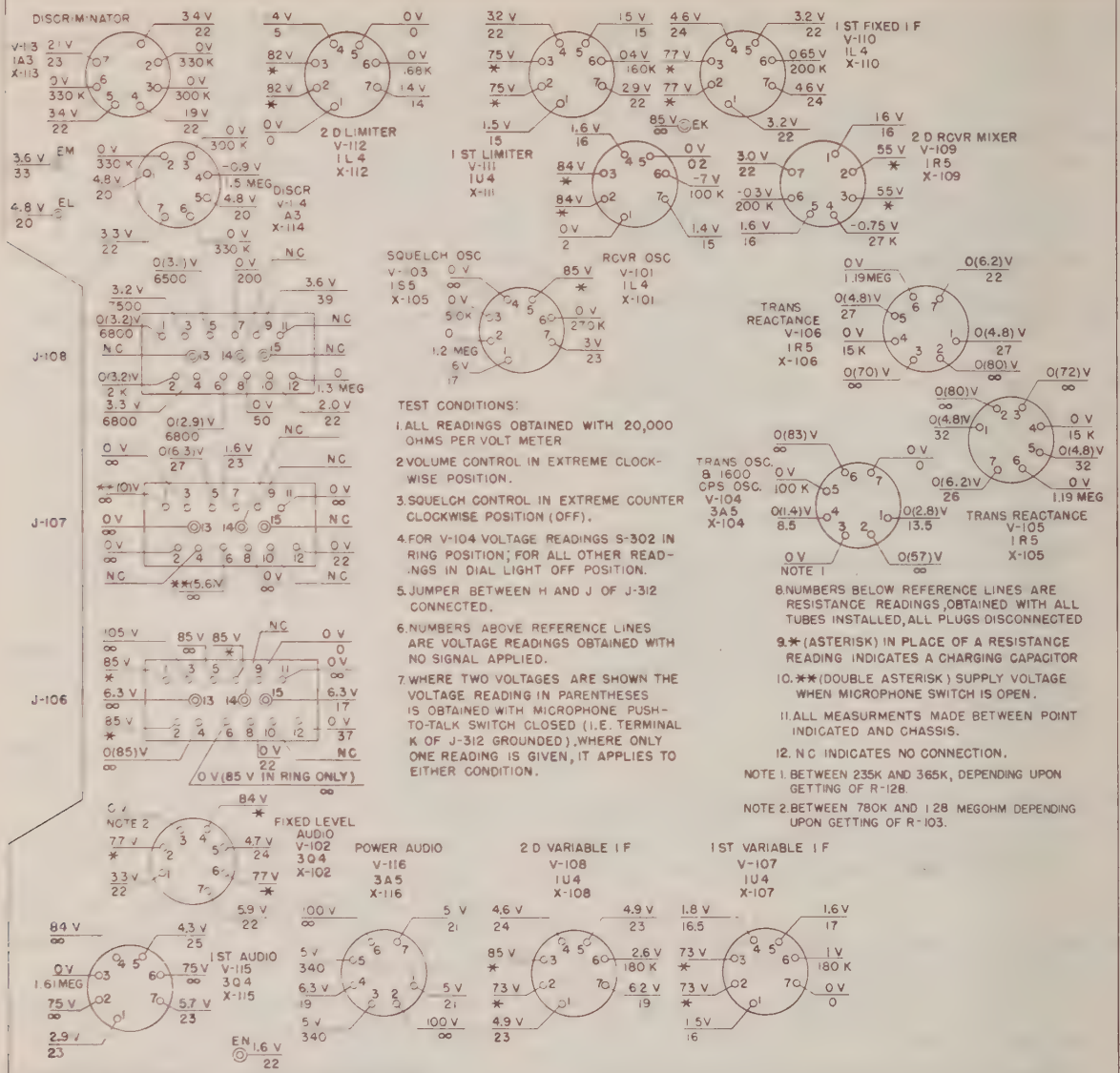


Figure 48.1. Resistance and voltage data, i-f chassis (Order No. 32114-Phila-51).

Page 96. Par. 58. Make the following changes in the table of subparagraph b:

In the "Point of measurement" column, change the thirteenth item to read: From term. 7 of X-107 to chassis.

In the "Probable trouble" column, fourth item,

change "L-2" to read: L-3; in the seventh item, delete "contacts 9-10 of relay O-101".

Page 97. Par. 58. Make the following changes in the table of subparagraph b:

Add the following after the information for "First limiter stage (V-111)":

Circuit or stage	Point of measurement	Normal reading (ohms)	Probable trouble
	From term. 6 of X-111 to term. 1 of X-1.	2 meg	Defective R-180 or R-55.

In the "Normal reading (ohms)" column, change the third item from the bottom of the page to read: 150,000; change the fourth and fifth items from the bottom of the page to read: 650,000.

Page 98. Par. 58. In the table of subparagraph *b*, make the following changes in the "Normal reading (ohms)" column:

- Change the first item to read: 1.61 meg.
- Change the eighteenth item to read: 680K.

Page 99. Par. 58. Make the following changes in the

Circuit or stage	Point of measurement	Normal reading (ohms)	Probable trouble
	From term. 3 to X-104 to chassis.	Between 235K and 356K depending on setting of R-128.	Defective R-126, R-127, or R-128.

Page 100. Par. 58. Make the following changes in the table of subparagraph *b*:

- In the "Point of measurement" column, delete the ninth item.
- In the "Normal reading (ohms)" column, change the eighth item to read: 58,200; delete the ninth item; change the third item from the bottom of the page to read: 10; change the second item from the bottom of the page to read: 10.
- In the "Probable trouble" column, delete the ninth item; change the third item from the bottom of the page to read: Defective R-56; change the second item from the bottom of the page to read:

Circuit or stage	Point of measurement	Normal reading (ohms)	Probable trouble
	From (+) term. on meter to chassis (METER switch in RF position.) <i>Warning:</i> To avoid damage to meter M-301, disconnect its negative lead before making measurement.	15,800	Defective C-304, R-308, or R-306.

Page 103. Par. 58. In the table of subparagraph *b*, "Probable trouble" column, delete "L-20 or" in the last item.

- table of subparagraph *b*:
- In the "Normal reading (ohms)" column, change the sixth item from the bottom of the page to read: 30 ohms.
- In the "Probable trouble" column, first item, change "(fig. 19)" in the "Note" to read: (fig. 16); change the seventeenth item to read: Defective R-115 (this change applies to all receiver-transmitter models); in the sixth item from the bottom of the page, delete "R-129".

Add the following after the information for "Ringer circuit (V-104B)":

Defective R-57; in the last item, delete "or L-20".

Page 101. Par. 58. Make the following changes in the table of subparagraph *b*:

- In the "Normal reading (ohms)" column, change the second item to read: 18,000.
- In the "Probable trouble" column, fifteenth item, delete "L-19"; in the eighteenth item, delete "L-20".

Page 102. Par. 58. In the table of subparagraph *b*, insert the following after the twentieth item in the "Point of measurement" "Normal reading (ohms)", and "Probable trouble" columns:

Page 107. Par. 64. Make the following changes in paragraph 64:

In the paragraph heading, change "(figs. 34

In the heading of subparagraph *f* and in the first sentence, change "C-7" to read: C-17 (this change applies to all receiver-transmitter models).

Page 112. Fig. 50. Insert figure 50.1 after figure 50.



Page 131. App. II. Par. 2. Add the following to the last item:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68 GRC			
		C-77,	V-6 plate circuit tuning.		
		C-81,	V-9 and V-10 plate circuit tuning.		
		C-204	V-103 coupling.		

In the "RT-68/GRC" column, delete "C-35", "C-39", "C-20", "C-7", "C-137", and "C-138".

Add the following after the information for "C-122":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-54,	V-7 plate circuit padder.		
		C-8	V-1 plate circuit tuning.		

Add the following after the information for "C-2":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-5	Antenna coupling.		

Add the following after the information for "C-138":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-35	V-5 plate circuit tuning.		

Page 133. App. II. Par. 2. Make the following changes in paragraph 2:

Add the following after the information for "C-161":

In the "RT-68/GRC" column, delete "C-67".

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-20	Coupling capacitor for first harmonic amplifier V-4 to receiver first mixer V-2.		

Add the following to the last item:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-67	V-11 input coupling.		

Page 134. App. II. Par. 2. Make the following changes in paragraph 2:

"C-63", "C-64", and "C-40".

In the "RT-68/GRC" column, delete "C-6",

Add the following after the information for "C-184":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-41,	V-6 filament bypass.		
		C-42,	V-6 filament bypass.		
		C-44,	V-6 screen bypass.		
		C-46,	V-7 and V-8 filament bypass.		
		C-49,	V-7 filament bypass.		
		C-53,	V-7 and V-8 screen bypass.		
		C-58,	V-9 and V-10 decoupling bypass.		
		C-59,	V-9 and V-10 decoupling bypass.		
		C-60,	V-9 filament bypass.		
		C-61,	V-10 filament bypass.		
		C-62,	V-9 and V-10 screen bypass.		

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		C-42	V-11 screen bypass.		
		C-51	V-7 filament bypass.		
		C-52	V-8 filament bypass.		
		C-70	V-11 decoupling bypass.		
		C-76	V-1 grid bypass.		

Page 135. App. II. Par. 2. Make the following changes in paragraph 2:

"C-62", "C-70", "C-140", "C-4", "C-10", "C-69", and "C-76".

In the "RT-68/GRC" column, delete "C-41", "C-42", "C-44", "C-46", "C-49", "C-50", "C-51", "C-52", "C-53", "C-58", "C-59", "C-60", "C-61",

Add the following after the information for "C-304".

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		C-10	V-2 screen bypass.		

Page 136. App. II. Par. 2. Make the following changes in paragraph 2:

Add the following after the information for "C-305":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		C-6	V-1 decoupling.		
		C-207	Feedback (AGC) circuit bypass.		

In the "RT-68/GRC" column, delete "C-303".

Page 137. App. II. Par. 2. Make the following changes in paragraph 2:

In the "Name of part and description" column, last item, add 750 before "uuf"; change "CM20-B241J" to read: CM25B751J.

In RT-68/GRC" column, delete "C-197", "C-72", and "C-143."

In the "Signal Corps stock No." column, change "3K2024122" to read: 3K2575122.

Add the following after the information for "C-197":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		C-80	V-11 tank circuit padder.	CAPACITOR, fixed: mica dielectric; JAN type CM20BA71M; 470 uuf $\pm 20\%$; 500 vdcw; spec JAN-C-5.	3K2047124
		C-143	1,600-cycle oscillator tuning.	CAPACITOR, fixed: ceramic, dielectric; 910 uuf $\pm 5\%$; 300 vdcw; per Fed Tele & Rad part/dwg #GH3803-12.	3D9910-4
		C-206	1,600-cycle oscillator tuning.	CAPACITOR, fixed: mica dielectric; 910 uuf $\pm 2\%$; 500 vdcw JAN type CM25D911G; spec JAN-C-5.	3K259113

Page 138. App. II. Par. 2. Make the following changes in paragraph 2:

Add the following after the information for "C-205":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		C-140	V-104B ringer oscillator d-c blocking.		
		C-205	V-103 decoupling bypass.		
		C-78	Squelch timing.	CAPACITOR, fixed: paper dielectric; 10,000 uuf $\pm 20\%$; 600 vdcw; JAN type CN35A103M; spec JAN-C-91.	3DA10-367

In the "RT-68/GRC" column, delete "C-141".

Page 140. App. II. Par. 2. In the "RT-68/GRC" column, delete "L-14", "L-15", "L-19", and "L-20".

Page 141. App. II. Par. 2. Make the following changes in paragraph 2:

In "RT-68/GRC" column, delete "L-2".

In "RT-68/GRC" column, change "T-102" to read T-104.

In the "Function of part" column change "V-102 retransmit audio output coil" to read: TRANS REACTANCE plate coupling (the above changes apply to all receiver-transmitter models).

Page 144. App. II. Par. 2. In the "Name of part and description" and "Signal Corps stock No." columns, delete the information for "L-1" and "L-5" of the RT-68/GRC model and substitute the following:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		L-1		COIL, RF: tuning; single wdg, single layer wdg; unshielded; $4\frac{1}{2}$ turns #18 tinned copper wire tapped at $\frac{1}{2}$ turn; $1\frac{5}{8}$ " lg excluding adj screw x $\frac{5}{8}$ " dia; ceramic form, powdered iron core; form $\frac{5}{8}$ " OD x $1\frac{5}{8}$ " lg; adj iron core tuning; scdr slotted adj screw at end of coil form; single "D" hole mtg, $\frac{1}{2}$ " -13 NC x $11/32$ " lg silver pl thd ceramic mtg bushing w/locating flat molded as p/o form; 3 solder type term. on side of form; tension device on adj screw; Fed Tele & Rad part/dwg #GA-3819-2-GR-I.	3C1084Z32-20
		L-3		COIL, RF: tuning; single wdg, single layer wdg; unshielded; $4\frac{1}{2}$ turns #18 tinned copper wire $1\frac{5}{8}$ " lg excluding adj screw x $\frac{5}{8}$ " dia; ceramic form, powdered	3C1084Z32-21

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
				iron core; form $\frac{3}{8}$ " OD x $1\frac{1}{8}$ " lg; adj iron core tuning; scdr slotted adj screw at end of coil form; single "D" hole mtg, $\frac{1}{2}$ "-13 NC x $11/32$ " lg silver pl thd ceramic mtg bushing w/locating flat molded as p/o coil form; 2 solder type term. on side of form; tension device on adj screw; Fed Tele & Rad part/dwg #GA-3819-2-GR II.	

Page 145. App. II. Par. 2. In the "Name of part and description" and "Signal Corps stock No." columns,

delete the information for "L-12" and "L-16" of the RT-68/GRC model and substitute the following:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		L-12		COIL, RF: tuning; single wdg, single layer wdg; unshielded; 4 turns #18 tinned copper wire; $1\frac{1}{8}$ " lg excluding adj screw x $\frac{3}{8}$ " dia; ceramic form, powdered iron core; form $\frac{3}{8}$ " lg; adj iron core tuning; scdr slotted adj screw at end of coil form; single "D" hole mtg, $\frac{1}{2}$ "-13 NC x $11/32$ " lg silver pl thd ceramic mtg bushing w/locating flat molded as p/o form; 2 solder type term. on side of form; tension device on adj screw; Fed Tele & Rad part/dwg #GA-3819-2-GR III.	3C1084Z32-22
		L-16		COIL, RF: tuning; single wdg, single layer wdg; unshielded; $3\frac{1}{2}$ turns #18 tinned copper wire; $1\frac{1}{8}$ " lg excluding adj screw x $\frac{3}{8}$ " dia; ceramic form, powdered iron core; form $\frac{3}{8}$ " OD x $1\frac{1}{8}$ " lg; adj iron core tuning; scdr slotted adj screw at end of coil form; single "D" hole mtg, $\frac{1}{2}$ "-13 NC x $11/32$ " lg silver pl thd ceramic mtg bushing w/locating flat molded as p/o form; 2 solder type term. on side of form; tension device on adj screw; Fed Tele & Rad part/dwg #GA-3819-2-GR IV.	3C1084Z32-23

Page 147. App. II. Par. 2. In the "RT-68/GRC" column, delete "O-15", "O-16", "O-16", and "O-18".

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		H-21	Mounting nut, L-1 coil.	NUT, castellated: brass, bright dip finish; 1/2"-13 NC-2; 1/4" thk; 5/8" OD; 4 slots 3/32" wd x 3/64" d spaced 90° apart in top edge; Fed Tel & Rad part/dwg #GB-3821-2.	
		H-22	Mounting nut, L-3 coil.		
		H-23	Mounting nut, L-12 coil.		
		H-24	Mounting nut, L-16 coil.		

Page 154 App. II. Par. 2. Add the following after the last item:

Page 155. App. II. Par. 2. In the "Name of part and description" column for relay O-101, last line, delete Fed Tele & Rad part/dwg #: "GH-3161-2" and substitute Fed Tele & Rad part/dwg #: GH-

1361-2.

Page 156. App. II. Par. 2. Add the following after the information for "R-149":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-56	V-7 filament voltage dropping.	RESISTOR, fixed: comp; 10 ohms $\pm 10\%$; 1/2 W; JAN type RC20BF100K; spec JAN-R-11.	5RC10BF-100K
		R-57	V-8 filament voltage dropping.		

Page 157. App. II. Par. 2. Make the following changes in paragraph 2:

"R-306", and "R-52".

In the "RT-68/GRC" column, delete "R-2",

Add the following after the information for "R-38":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-306	S-301 metering.		

Add the following after the information for the last item:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-52	V-11 screen voltage dropping.	RESISTOR, fixed: comp; JAN type RC40BF332K; 3300 ohms $\pm 10\%$; 2 W; spec JAN-R-11.	5RC40BF-332K

Page 158. App. II. Par. 2. Add the following after the information for "R-137":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-23	V-5 grid resistor.		

Page 159. App. II. Add the following after the information for "R-117":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-308	R-f metering.		
		R-46	V-10 screen voltage dropping.		

Page 159. App. II. Par. 2. Make the following changes in paragraph 2:

In the "RT-68/GRC" column, delete "R-46",

"R-128", "R-129", "R-29", "R-13", "R-1", and "R-54".

Add the following after the information for "R-128":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-6	V-2 grid bias resistor.		

Add the following after the information for "R-134":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-29	V-6 screen voltage dropping.		
		R-13	V-3 grid resistor.	RESISTOR, fixed: comp; 82,000 ohms $\pm 10\%$; 1/2 w; JAN type RC20BF823K; spec JAN-R-11.	3RC20BF-823K
		R-113	V-103 grid resistor.		

Add the following after the information for the last item:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-5	V-2 grid resistor.		

Page 160. App. II. Par. 2. Make the following changes in paragraph 2:

In the "RT-68/GRC" column, delete "R-6", "R-116", "R-118", "R-301", "R-113", "R-179",

"R-5", and "R-175".

Add the following after the information for "R-301":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-309	V-103 screen voltage dropping.		

Add the following after the information for
"R-174":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		R-175	V-113 coupling, output of discriminator to VOLUME control.		

Add the following after the information for
"R-307":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-116,	V-105 decoupling between discriminator and transmitter reactance.		
		R-118,	V-106 decoupling between discriminator and transmitter reactance.		
		R-119	V-103 grid load.	RESISTOR, fixed: comp; 180,000 ohms $\pm 5\%$; $\frac{1}{2}$ w; JAN type RC20BF184J; spec JAN-R-11.	3RC20BF-184J

Page 161. App. II. Par. 2. Make the following changes in paragraph 2:

In the "RT-68/GRC" column, delete "R-23", "R-104", "R-110", "R-113", "R-111", "R-106", and

"R-55".

Add the following after the information for
"R-171":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-1,	V-1 grid resistor.		
		R-181,	V-115 grid resistor.		
		R-310	V-103 screen resistor.		

Add the following after the information for
"R-167":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		R-110	V-103 diode load.		

Add the following after the information for "R-173":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		R-55,	V-1 coupling from squelch to receiver r-f amplifier.		
		R-106,	V-113 coupling from discriminator to trans audio.		
		R-184	V-103 grid bias.		

Add the following after the information for "R-166":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		R-180	V-1 feedback voltage dropping.		
		R-111	V-103 grid bias.	RESISTOR, fixed: comp; 2.2 meg $\pm 10\%$; $\frac{1}{2}$ w; JAN type RC20BF225K; spec JAN-R-11.	3RC20BF-225K

Page 162. App. II. Par. 2. Add the following after the information for "R-103":

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		R-126	V-104B ringer oscillator frequency adjust (internal).		

Page 165. App. II. Par. 2. In the "RT-68/GRC" column, delete "O-8", "O-9", "O-10", and "O-12".

in paragraph 2:

In the "RT-68/GRC" column, delete "T-105".

Page 167. App. II. Par. 2. Make the following changes

Add the following after the first item:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66 GRC	RT-67 GRC	RT-68 GRC			
		T-105	1600-cycle oscillator.	TRANSFORMER, AF: plate coupling type; three wdg; term. 1-2 tunes to 1600 cps w/1820 uuf in shunt; term. 1-2 feeds 470,000 ohms; term. 5-6 delivers 4.5 v ± 1.5 v through .045 uf; 500 v rms test; upright HS steel case 4750 nickel core; $1\frac{3}{8}$ " lg x $\frac{7}{8}$ " wd x 2-1/16"	2Z9632.681

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
				h o/a incl term.; turns ratio term. 3-4 to 1-2 .321 $\pm 2\%$, term. 5-6 to 1-2 .0557 $\pm 2\%$; 6 solder type stud term. on bottom of case; two .128" dia mtg holes on $1\frac{1}{8}$ " mtg/c; part No. and term. designation marked on side of case; Fed Tele & Rad part/dwg #GH-1204-2; spec MIL-T-27.	

Page 169. App. II. Par. 2. Add the following after the last washer:

Ref symbol			Function of part	Name of part and description	Signal Corps stock No.
RT-66/GRC	RT-67/GRC	RT-68/GRC			
		H-25,	Mounting washer, L-1 coil.	WASHER, flat: vinylite, clear color; round, .64" OD x .515" ID x .031" thk; Fed Tele & Rad part/dwg #GP-3822-2.	
		H-26,	Mounting washer, L-3 coil.		
		H-27,	Mounting washer, L-12 coil.		
		H-28,	Mounting washer, L-16 coil.		

Insert figures 24.1, 32.1, and 55.1 in back of manual.

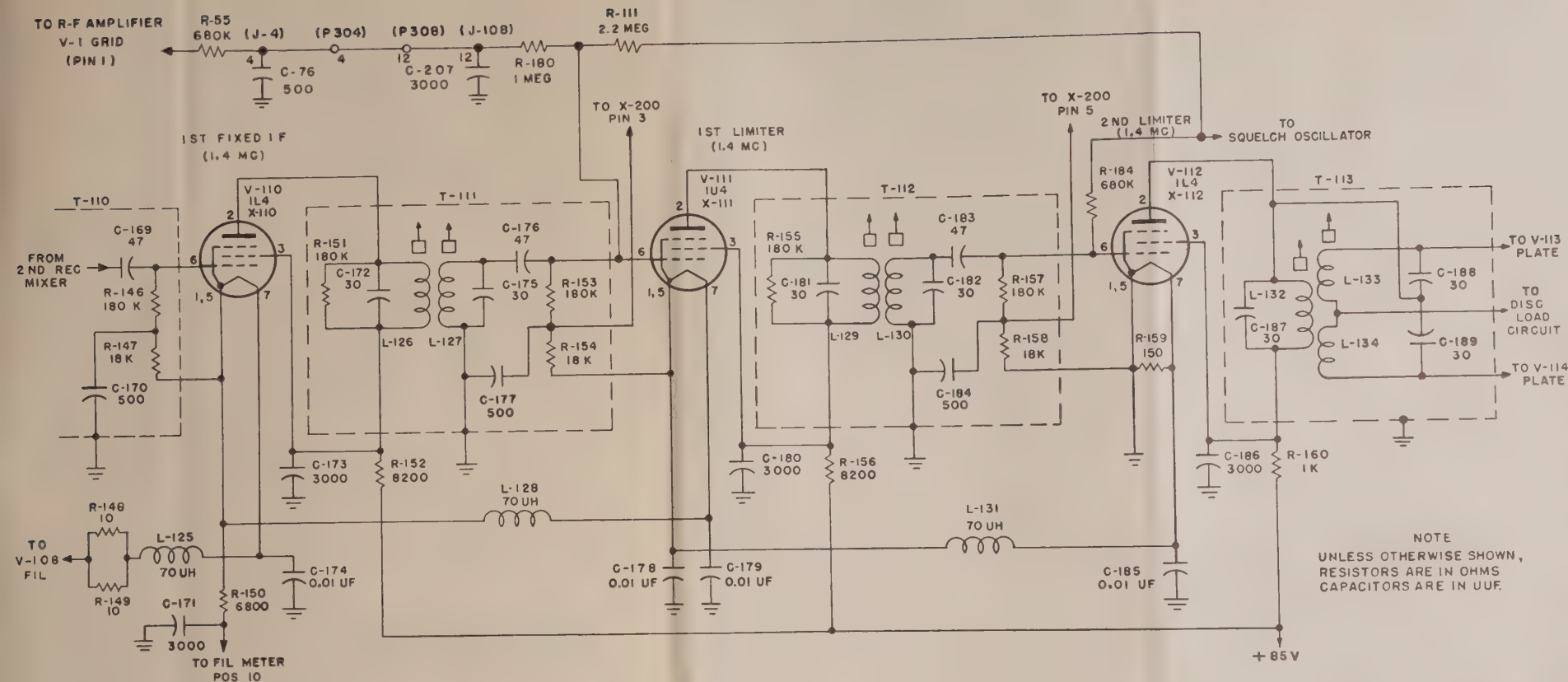


Figure 24.1. Fixed-if amplifier-limiter circuits, functional diagram
(Order No. 32114-Philco-51).

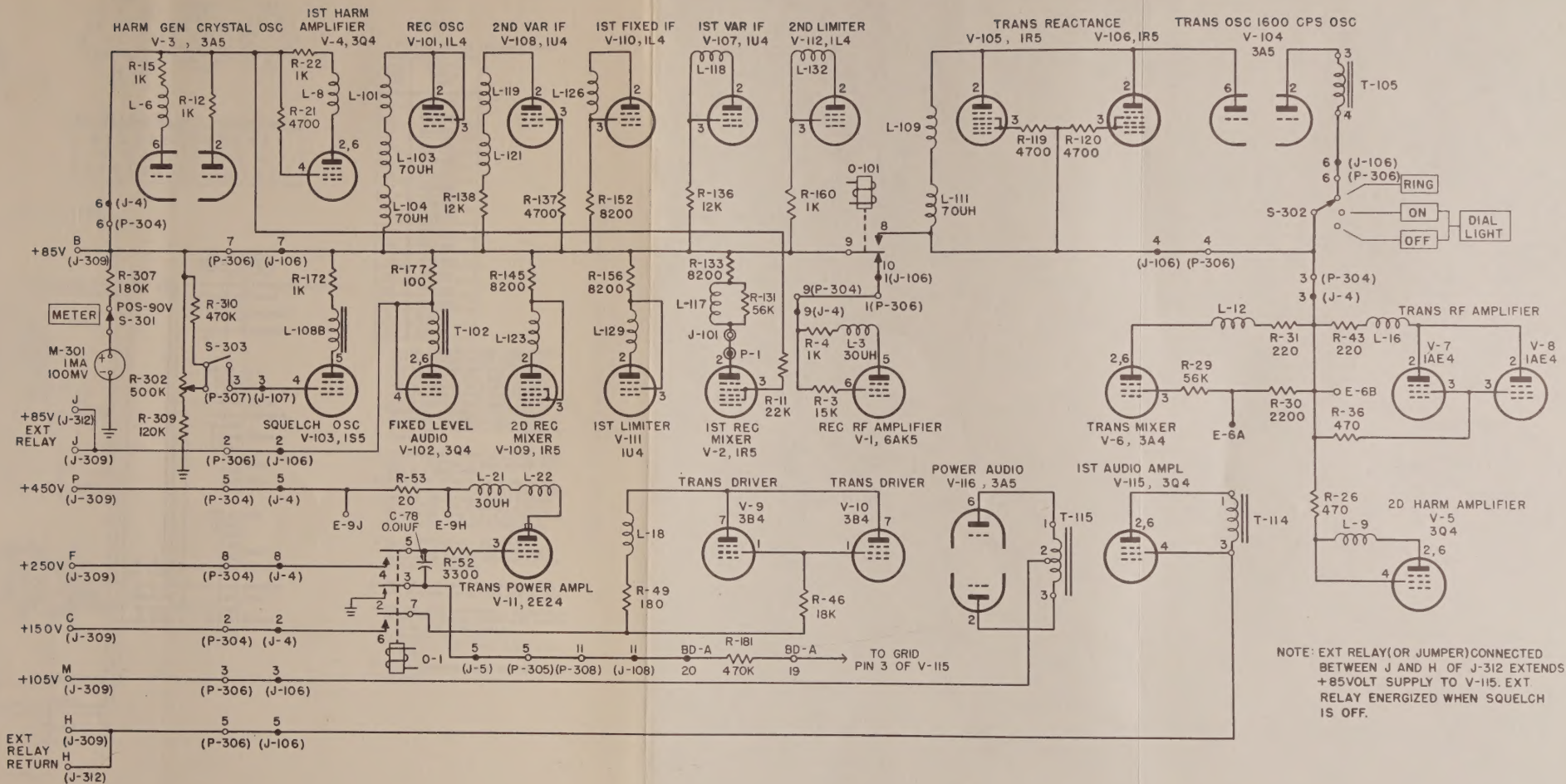


Figure 32.1. Plate and screen supply circuit, functional diagram
(Order No. 32114-Philco51).

